

# Spectrophotometric Detection of HNO by Trapping with Methemoglobin



*characteristic absorption  
between 530 and 600 nm*

NO can also give a small response:



But glutathione quenching can confirm HNO:

$$k_{\text{HNO}} = 2 \times 10^6 \text{ M}^{-1} \text{ s}^{-1}$$

$$k_{\text{NO}} < 4 \times 10^2 \text{ M}^{-1} \text{ s}^{-1}$$

*glutathione will quench the characteristic Fe(II)NO absorption  
between 530 and 600 nm if it was produced via reaction with  
HNO, but will not if it was produced via reaction with NO*

**Figure 1.**

# For Comparison -- Methemoglobin Assays with Angeli's Salt

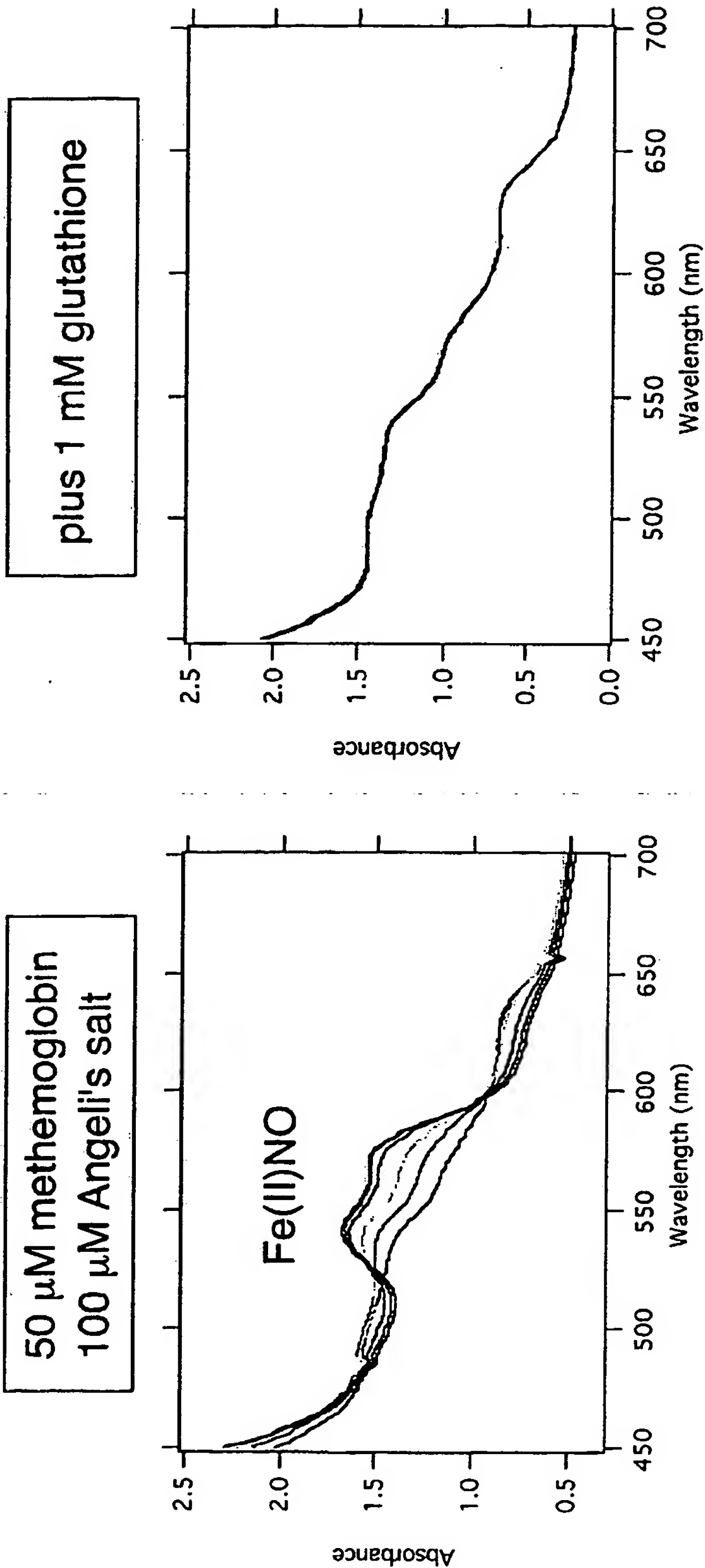


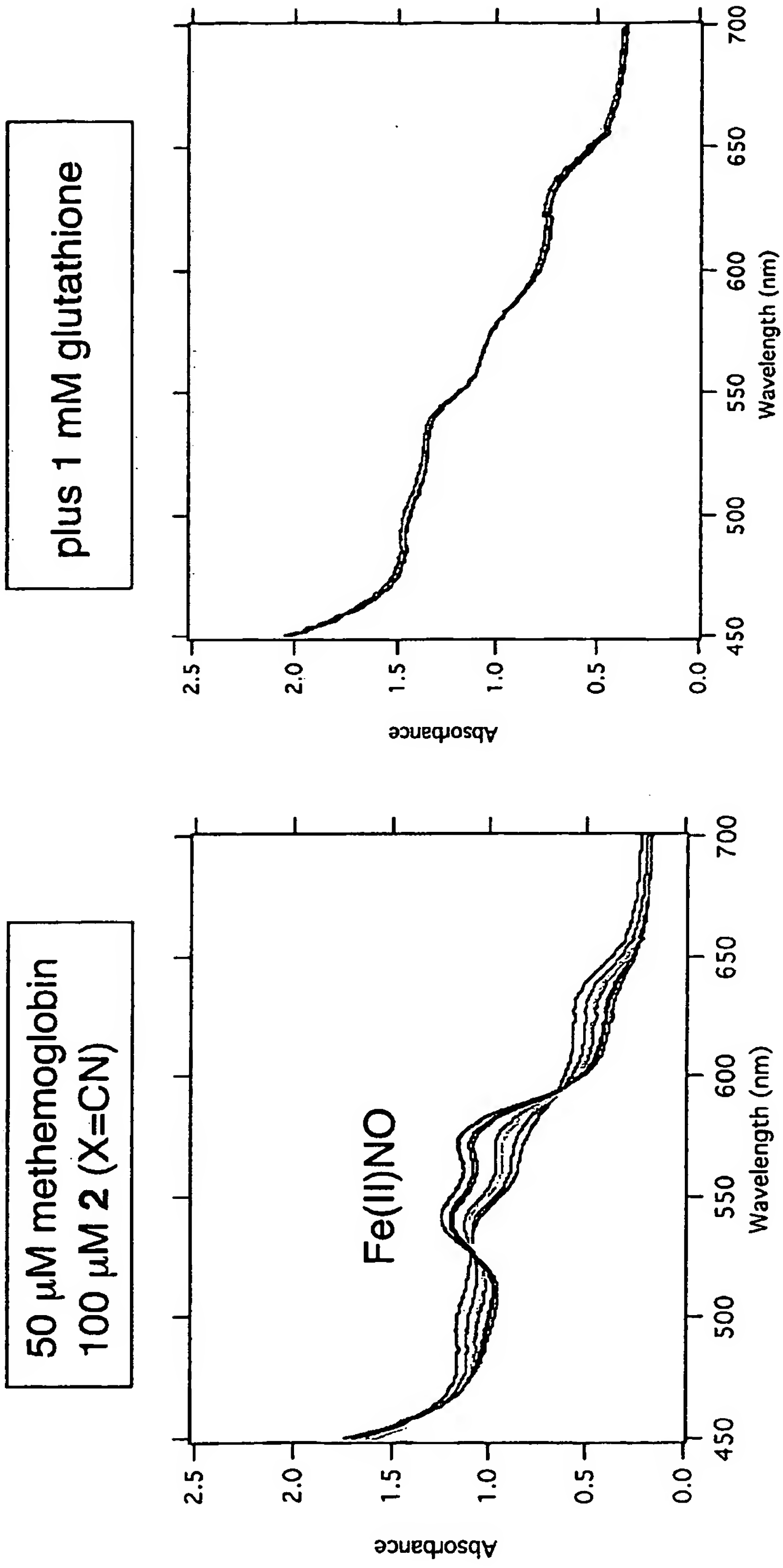
Figure 2.

# Methemoglobin Assays with 2 (X=CN)

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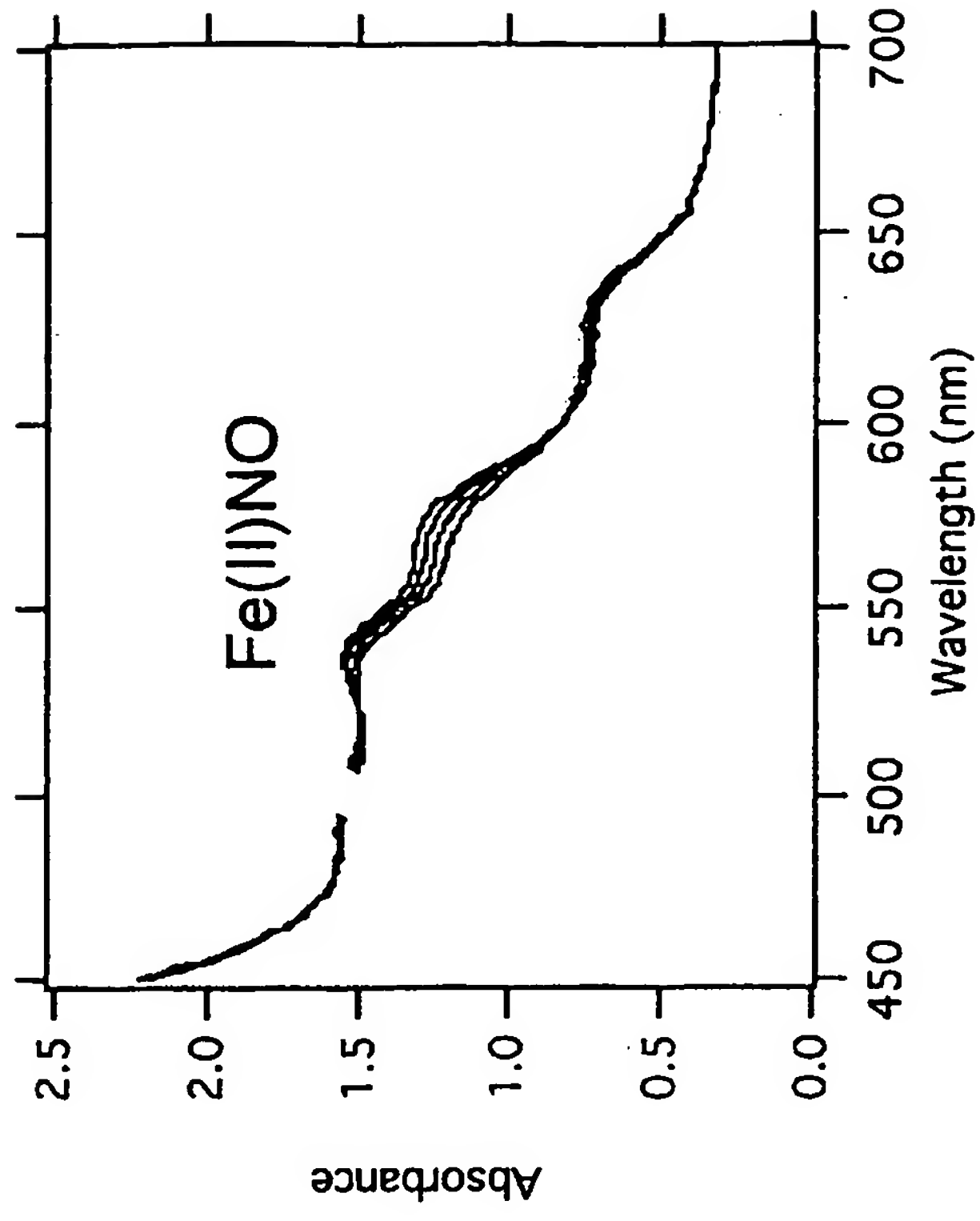
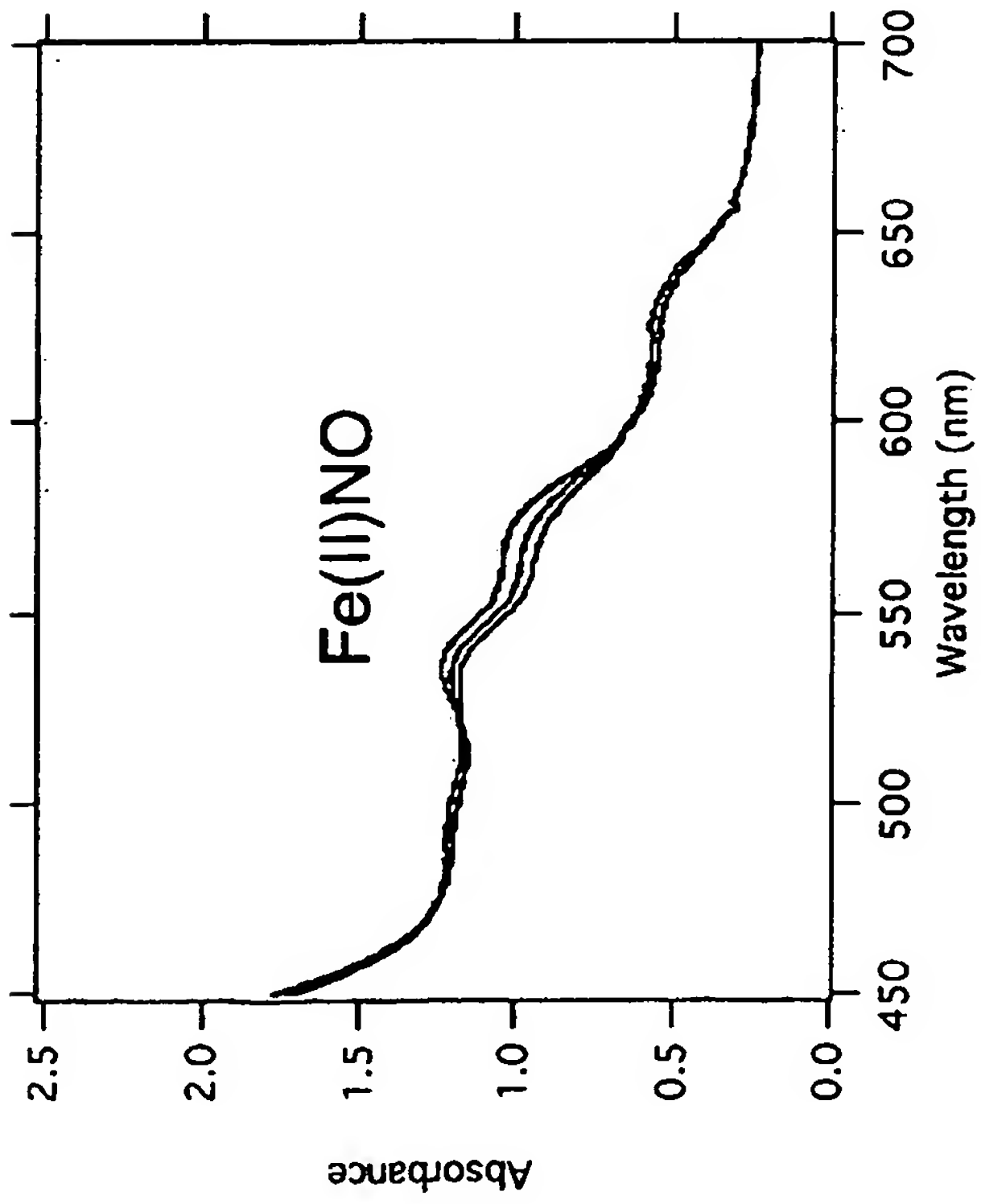
*N<sub>2</sub>O is observed by gas chromatography analysis as well*

**Figure 3.**

# For Comparison -- Methemoglobin Assays with 2 (X=H)

50  $\mu$ M methemoglobin  
150  $\mu$ M 2 (X=H)

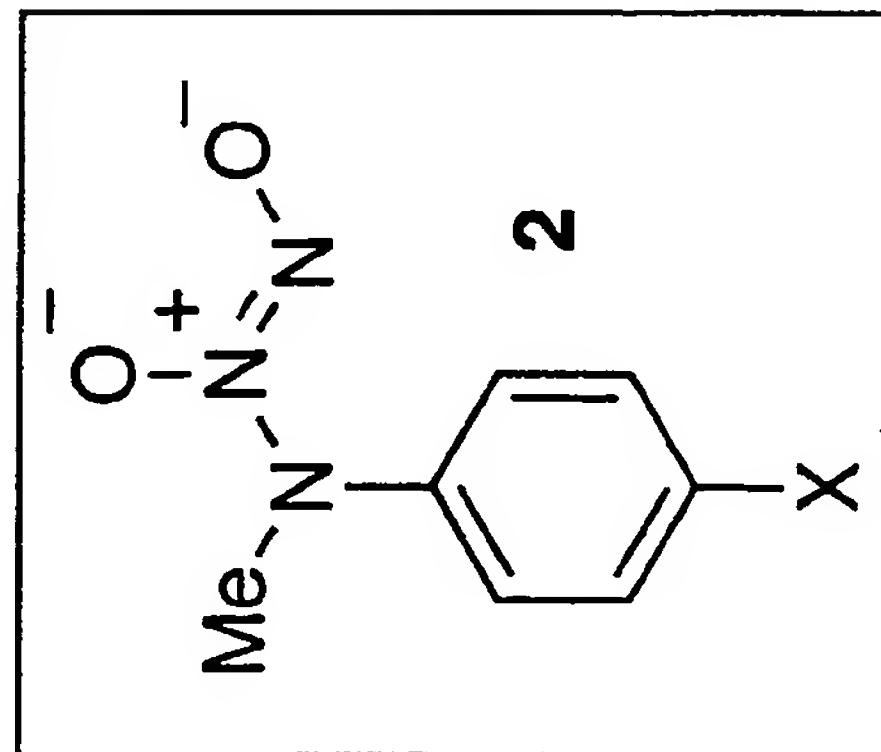
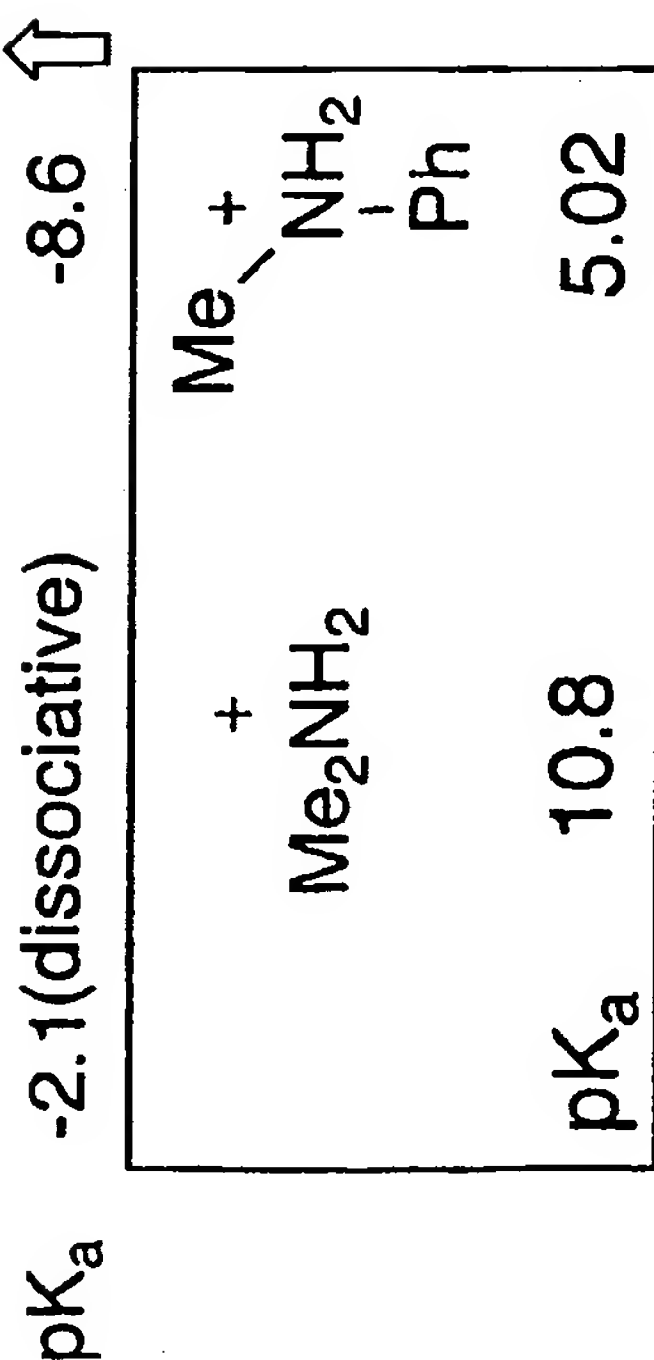
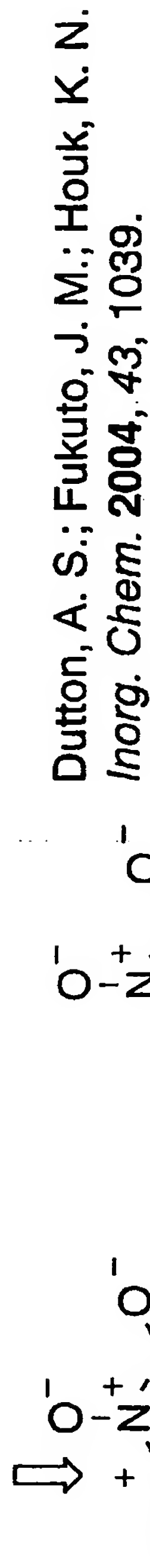
plus 1 mM glutathione



*no  $N_2O$  is observed by gas chromatography analysis*

**Figure 4.**

# The Effect of the $pK_a$ of the Protonated Form of the Amine from which Compounds 2 are Made



$X = H$	$+ NH_3$	$pK_a$	<b>NO</b>
MeO		4.58	
Cl		5.29	<b>NO</b>
CN		3.98	<b>HNO</b>
$NO_2$		1.74	<b>HNO</b>
		1.02	

Figure 5.

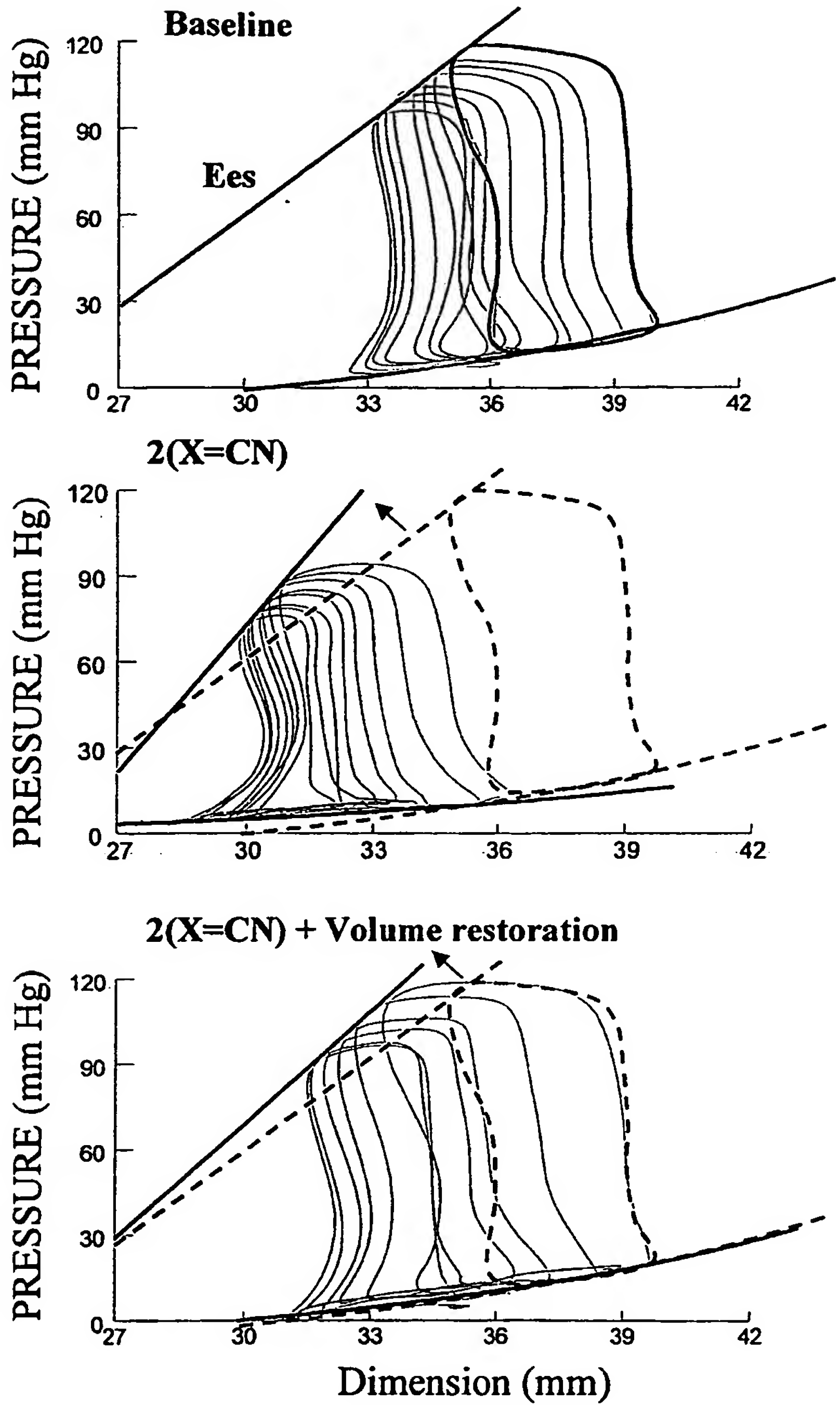


Figure 6.